

9. (amended) A photodynamic therapy treatment kit comprising:

a volume of a concentration including a combination of a surfactant having ionophoric properties and a photosensitizing agent, said surfactant producing a disorientation of a cell membrane so that said cell membrane no longer functions as an effective osmotic barrier, thereby permitting the photosensitizing agent to pass into the cell interior and

a light emitting treatment device configured to emit light and to activate photosensitizing agent within the cell interior to cause internal photodynamic destruction of the cell.

B2 10. (amended) A method of treatment comprising:

selecting one or more cells;

disposing a concentration in proximity to the one or more cells, said concentration including a combination of a surfactant having ionophoric properties and a photosensitizing agent on the one or more cells, said surfactant disorienting a cell membrane so that said cell membrane no longer functions as an effective osmotic barrier, thereby permitting the photosensitizing agent to pass into the one or more cells; and

applying a light in proximity to the one or more cells, wherein the combination of the light and photosensitizing agent within the one or more cells causes internal photodynamic disruption of the one or more cells.

B3 13. (amended) The method of treatment of claim 10 wherein the one or more cells are gram positive.

B4 16. (amended) The method of treatment of claim 10 wherein the step of selecting one or more cells is achieved by selecting a sterilization field.

17. (amended) The method of treatment of claim 10 wherein the step of selecting one or more cells is achieved by selecting an infection tissue site.

18. (amended) The method of treatment of claim 10 wherein the step of applying the light in proximity to the one or more cells results in photodynamic-induced cell death

22. (amended) The treatment kit according to claim 9 wherein the light emitting treatment device emits light at wavelengths ranging from approximately 450nm to approximately 850nm; and provides a dosage rate ranging from approximately 0 to approximately 150 mw/cm<sup>2</sup> and a light dose ranging from approximately 0 to approximately 300 J/cm<sup>2</sup>.

23. (amended) The method of treatment according to claim 10 wherein the combination includes a photosensitizing agent and more than one surfactant having ionophoric properties.

BS 24. (amended) The method of treatment according to claim 10 wherein the combination includes a surfactant having ionophoric properties and more than one photosensitizing agent.

25. (amended) The method of treatment according to claim 10 wherein the combination includes a plurality of different surfactants each having ionophoric properties and a plurality of different photosensitizing agents.

26. (amended) A method of cell disruption comprising:

selecting one or more cells;

disposing a photosensitizing agent in proximity to the one or more cells;

disposing a surface acting agent in proximity to the one or more cells, said surface acting agent having ionophoric properties and disorienting a cell membrane so that said cell membrane no longer functions as an effective osmotic barrier, whereby the photosensitizing agent passes through the cell membrane; and

applying a light in proximity to the one or more cells to cause internal photodynamic cellular disruption of the one or more cells.

35. (amended) The method of cell disruption of claim 26 wherein the step of selecting one or more cells is associated with a sterilization procedure.

36. (amended) The method of cell disruption of claim 26 wherein the step of selecting one or more cells is associated with a treatment of an infection at a tissue site.

37. (amended) The method of cell disruption of claim 26 wherein the step of selecting one or more cells includes providing one or more of a microbe or a fungus or a cancer cell.

38. (amended) The method of cell disruption of claim 26 wherein the surface acting agent is an anionic surfactant having ionophoric properties.

39. (amended) The method of cell disruption of claim 26 wherein the surface acting agent is a *polymyxin B* cationic surfactant having ionophoric properties.

40. (amended) The method of cell disruption of claim 26 wherein the surface acting agent is a non-ionic surfactant having ionophoric properties.

41. (amended) The method of cell disruption of claim 26 wherein the surface acting agent is an amphoteric surfactant having ionophoric properties.

42. (amended) The method of cell disruption of claim 38 wherein the surface acting agent is SDS at a concentration having ionophoric properties.

43. (amended) The method of cell disruption of claim 39 wherein the surface acting agent is polymyxin B at a concentration having ionophoric properties.

44. (amended) The method of cell disruption of claim 26 wherein the step of applying light results in photodynamic cell destruction.

45. (amended) The method of cell disruption of claim 26 wherein the step of selecting one or more cells is achieved by selecting gram negative bacteria, and wherein the step of disposing a surface acting agent results in an increase in gram negative bacterial cell membrane permeability.

46. (amended) The method of cell disruption of claim 26 wherein the step of selecting one or more cells is achieved by providing gram positive bacteria, and wherein the step of

disposing a surface acting agent results in an increase in gram positive bacterial cell membrane permeability.

47. (amended) The method of cell disruption of claim 26 wherein the step of selecting one or more cells includes the step of selecting a plurality of gram negative bacteria cells and a plurality of gram positive bacteria cells, and the step of disposing a surface acting agent results in an increase in both gram negative bacterial and gram positive bacterial cell membrane permeability.

48. (amended) The method of cell disruption of claim 26 wherein the step of selecting one or more cells includes the step of selecting a plurality of cells from among a gram negative bacteria cell, a gram positive bacteria cell, a fungal cell, and a tissue cell, and the step of disposing a surface acting agent results in an increase in cell membrane permeability of the plurality of cells.

49. (amended) A method of photodynamic disruption of cells comprising the steps of:

identifying an area of cell activity;

applying a concentration including a combination of a surfactant having ionophoric properties and a photosensitizing agent to the area of cell activity, said surfactant disorienting a cell membrane so that said membrane no longer functions as an effective osmotic barrier, and so that said photosensitizing agent is able to pass through a disoriented cell membrane and into a cell interior; and

exposing the area of cell activity to light having a light wavelength, light dosage and a light dosage rate to activate the photosensitizing agent within the cell interior to cause internal photodynamic cellular disruption.

54. (amended) A method of photodynamic disruption of acellular organisms comprising the steps of:

identifying an area of acellular organism activity;

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applying a concentration including a combination of a surfactant having ionophoric properties and a photosensitizing agent to the area of acellular organism activity, said surfactant disorienting an acellular organism membrane so that said membrane no longer functions as an effective osmotic barrier, and so that said photosensitizing agent is able to pass through a disoriented acellular organism membrane and into the acellular organism interior; and

exposing the area of acellular organism activity to light having a light wavelength, light dosage and a light dosage rate to activate photosensitizing agent within the acellular organism interior to cause an internal photodynamic destruction of the acellular organism.

60. (amended) A treatment protocol for a living body having cancer cells, said protocol comprising the steps of:

identifying cancer cells within the living body;

selecting a chemical agent having ionophoric properties to disrupt a membrane of the cancer cells;

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administering the chemical agent to the living body, said chemical agent disorienting a cancer cell membrane so that said membrane no longer functions as an effective osmotic barrier;

administering a photosensitizing agent to the living body, said photosensitizing agent passing through the cancer cell membrane; and

applying a light in proximity to the cancer cells, the combination of photosensitizing agent within the cell interior and light resulting in internal photodynamic disruption of the cancer cells.

61. (amended) The treatment protocol according to claim 60 wherein the chemical agent is an anionic surfactant having ionophoric properties.

62. (amended) The treatment protocol according to claim 60 wherein the chemical agent is a cationic surfactant having ionophoric properties.

63. (amended) The treatment protocol according to claim 60 wherein the chemical agent is a nonionic surfactant having ionophoric properties.

64. (amended) The treatment protocol according to claim 60 wherein the chemical agent is an amphoteric surfactant having ionophoric properties.

65. (amended) The treatment protocol according to claim 61 wherein the chemical agent is SDS at a concentration having ionophoric properties.

72. (amended) A treatment protocol for a living body having microbial cells, said protocol comprising the steps of:

identifying microbial cells within the living body;

selecting a chemical agent having ionophoric properties to disorient a cell membrane of a microbial cell within the microbial cells so that said cell membrane no longer functions as an effective osmotic barrier;

administering the chemical agent to the living body;

administering a photosensitizing agent to the living body, said photosensitizing agent passing through the cell membrane and into the interior of the microbial cell; and

applying a light in proximity to the microbial cell, said light in combination with the photosensitizing agent within the microbial cell to cause internal photodynamic disruption of the microbial cell.

73. (amended) The treatment protocol according to claim 72 wherein the chemical agent is an anionic surfactant having ionophoric properties.

74. (amended) The treatment protocol according to claim 72 wherein the chemical agent is a cationic surfactant having ionophoric properties.

75. (amended) The treatment protocol according to claim 72 wherein the chemical agent is a nonionic surfactant having ionophoric properties.

76. (amended) The treatment protocol according to claim 72 wherein the chemical agent is an amphoteric surfactant having ionophoric properties.

39 77. (amended) The treatment protocol according to claim 73 wherein the chemical agent is SDS at a concentration having ionophoric properties.

78. (amended) The treatment protocol according to claim 74 wherein the chemical agent is polymyxin B at a concentration having ionophoric properties.

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80. (amended) The treatment protocol of claim 79 wherein the step of disposing the solution on at least a portion of the living body includes a solution administration selected from among a group of: topical administration, intravenous administration, subcutaneous administration, administration proximate the microbial cells, and administration within the microbial cells.

81. (amended) A method of cell disruption comprising:

providing a plurality of cells;

30 disposing a surface acting agent having ionophoric properties in proximity to the plurality of cells, said surface acting agent disrupting a cell membrane so that said membrane no longer functions as an effective osmotic barrier;

disposing a photosensitizing agent in proximity to the plurality of cells, said photosensitizing agent passing through the cell membrane and into the cell interior; and

applying a light in proximity to the one or more cells to activate photosensitizing agent within the cell interior to cause internal photodynamic disruption of the plurality of cells.

84. (amended) The method of cell disruption of claim 81 wherein the surface acting agent is SDS at a concentration having ionophoric properties.



311 85. (amended) The method of cell disruption of claim 81 wherein the surface acting agent is polymyxin B at a concentration having ionophoric properties.

87. (amended) A method of potentiation of photodynamic therapy of a plurality of cells, said method comprising the steps of:

administering a surface acting agent having ionophoric properties in proximity to the plurality of cells, said surface acting agent causing a disorientation in a cell membrane so that said cell membrane no longer functions as an effective osmotic barrier;

312 administering a photosensitizing agent in proximity to the plurality of cells, said photosensitizing agent passing through the cell membrane and into the cell interior; and

applying a light in proximity to the plurality of cells, said light in combination with the photosensitizing agent causing activation of photosensitizing agent within the cell interior and internal photodynamic disruption of the plurality of cells.

92. (amended) A kit for potentiation of a photodynamic therapy of a pathogenic cell site, said photodynamic therapy utilizing a light source for a photodynamic cellular disruption at the pathogenic cell site, said kit comprising:

313 a surface acting agent having ionophoric properties and suitable for use in proximity to the pathogenic cell site, said surface acting agent disrupting a pathogenic cell membrane so that said membrane no longer functions as an effective osmotic barrier; and

a photosensitizing agent suitable for use in proximity to the pathogen cell site and passing within the pathogenic cell membrane and reactive with the light source to result in an internal photodynamic cellular disruption.

314 95. (amended) A combined solution for potentiation of a photodynamic therapy of a pathogenic cell site, said photodynamic therapy utilizing a light source for a photodynamic cellular



disruption at the pathogenic cell site, said combined solution adapted to be disposed in proximity to the pathogen cell site, said solution comprising:

a surface acting agent having ionophoric properties, said surface acting agent adapted to

disorientate a pathogenic cell membrane so that said membrane no longer functions as an

effective osmotic barrier; and

a photosensitizing agent, said photosensitizing agent being passed through the pathogenic cell

membrane, said photosensitizing agent being reactive with the light source to result in an

internal photodynamic cellular disruption of the pathogenic cell site.